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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/582,722	04/02/2007	Katerina Karagianni	60838.000580	4969
21967	7590	12/24/2009	EXAMINER	
HUNTON & WILLIAMS LLP INTELLECTUAL PROPERTY DEPARTMENT 1900 K STREET, N.W. SUITE 1200 WASHINGTON, DC 20006-1109			LI, AIQUN	
		ART UNIT	PAPER NUMBER	
		1796		
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**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

<b>Office Action Summary</b>	<b>Application No.</b>	<b>Applicant(s)</b>
	10/582,722 Examiner AIQUN LI	KARAGIANNI ET AL. Art Unit 1796

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

#### Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

#### Status

- 1) Responsive to communication(s) filed on 27 October 2009.  
 2a) This action is **FINAL**.                    2b) This action is non-final.  
 3) Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

#### Disposition of Claims

- 4) Claim(s) 62-83 is/are pending in the application.  
 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.  
 5) Claim(s) \_\_\_\_\_ is/are allowed.  
 6) Claim(s) 62-83 is/are rejected.  
 7) Claim(s) \_\_\_\_\_ is/are objected to.  
 8) Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

#### Application Papers

- 9) The specification is objected to by the Examiner.  
 10) The drawing(s) filed on \_\_\_\_\_ is/are: a) accepted or b) objected to by the Examiner.  
     Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
     Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).  
 11) The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

#### Priority under 35 U.S.C. § 119

- 12) Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).  
 a) All    b) Some \* c) None of:  
 1. Certified copies of the priority documents have been received.  
 2. Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.  
 3. Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

#### Attachment(s)

- |  |   |
|--|---|
| 1) <input type="checkbox"/> Notice of References Cited (PTO-892)   | 4) <input type="checkbox"/> Interview Summary (PTO-413)           |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948)                         | Paper No(s)/Mail Date. _____ .                                    |
| 3) <input type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)<br>Paper No(s)/Mail Date _____ . | 5) <input type="checkbox"/> Notice of Informal Patent Application |
|  | 6) <input type="checkbox"/> Other: _____ .                        |

## **DETAILED ACTION**

1. Claims 62-83 are pending as amended on 27 October, 2009, claims 1-61 being cancelled.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.
3. Applicant's amendments to the claims and the remarks/arguments filed on 27 October 2009 have been entered and fully considered.

### ***Response to Amendment and Arguments***

4. Applicant's amendments cancel claims 1-61, the claim objection and rejection in previous Office action are moot .
5. Applicant's arguments have been fully considered but are moot in view of the new grounds of rejection.

### ***Claim Interpretations***

6. The recitation "A (a) drilling fluid" in claims 62-83, and "A clay-swelling inhibitor and /or an accretion-inhibiting agent and/or a fluid-rheology-controlling agent and/or a

filtrate-reducing agent and /or a lubricating agent" in claim 83, merely recite the purpose of a process or the intended use of a structure. A recitation of the intended use of the claimed invention must result in a structural difference between the claimed invention and the prior art in order to patentably distinguish the claimed invention from the prior art. If the prior art structure is capable of performing the intended use, then it meets the claim. See *In re Hirao*, 535 F.2d 67, 190 USPQ 15 (CCPA 1976) and *Kropa v. Robie*, 187 F.2d 150, 152, 88 USPQ 478, 481 (CCPA 1951).

The recitation "A (a) drilling fluid" in claims 62-83 has been interpreted as "A composition", and "A clay-swelling inhibitor and /or an accretion-inhibiting agent and/or a fluid-rheology-controlling agent and/or a filtrate-reducing agent and /or a lubricating agent" in claim 83 has been interpreted as "an agent/additive" .

#### ***Claim Rejections - 35 USC § 102***

7. **Claims 62-68 and 75-77, 79-80 and 83** are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 3671502 (Samour).

Samour teaches a neutral, hydrophilic copolymer of monomers consisting a carboxybetaine or sulfobetaine (claim 1), which reads on the claimed units with a betaine group having a cationic group and an anionic group; and a polyalkylene glycol acrylate/methacrylate (claim 1), which reads on the claimed alkoxyolated units; or hydroxyethylacrylate, hydroxyethylmethacrylate, hydroxypropylacrylate, hydroxypropylmethacrylate, or polyglycerol acrylate/methacrylate having the formula

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$\text{H}_2\text{C}=\text{C}(\text{CH}_3)\text{COO}(\text{CH}_2\text{CH}(\text{OH})\text{CH}_2\text{OH})$  or  $\text{H}_2\text{C}=\text{CHCOO}(\text{CH}_2\text{CH}(\text{OH})\text{CH}_2\text{OH})$  (claim 1), which reads on the claimed hydroxylated units.

Samour further teaches the polymer comprising 9g of N-methacryloyloxyethyl-N, N-dimethyl-N,3-propyl-sulfobetaine and 1g of hydroxyethylmethacrylate (claims 4 and 6, and Example, col.2, line 46-47), which is equivalent to 81 mol% of sulfobetaine unit, and 19% of hydroxylated unit, based on the molecular mass of N-methacryloyloxyethyl-N, N-dimethyl-N,3-propyl-sulfobetaine (279 g/mole) and hydroxylethylmethacrylate (130 g/mole), which reads on the claimed range.

Samour further teaches the betaine is sulfobetaine (claim 1) such as N-methacryloyloxyethyl-N, N-dimethyl-N,3-propyl-sulfobetaine or carboxybetaine such as N-methacryloyloxyethyl-N, N-dimethyl-N,2-ethyl-carboxybetaine (claims 1 and 5), all of which have a non-polymerizable betaine group, therefore the betaine groups can not contribute to the polymer backbone and are pendent groups of the polymer.

Samour discloses the betaine unit having a formula such as  $\text{H}_2\text{C}=\text{CH}(\text{R}_1)\text{COA}-\text{R}_2\text{N}^+(\text{R}_3\text{R}_4)(\text{CH}_2)_{n_1}\text{SO}_3^-$  (claim 1, when  $\text{X}^-$  is  $\text{SO}_3^-$  ), which reads on the claimed alkyl sulfonates of dialkylammonium alkyl acrylate when A is oxygen,  $\text{R}_1$  is hydrogen; alkyl sulfonates of dialkylammonium alkyl methacrylate when A is oxygen,  $\text{R}_1$  is methyl; alkyl sulfonates of dialkylammonium alkyl acrylamido when A is NH,  $\text{R}_1$  is hydrogen; alkyl sulfonates of dialkylammonium alkyl methacrylamido when A is NH,  $\text{R}_1$  is methyl; sulfopropyldimethylammonioethyl methacrylate when A is oxygen,  $\text{R}_1, \text{R}_3$  and  $\text{R}_4$  are methyl,  $\text{R}_2$  is ethylene,  $n_1$  is 3; sulfoethyldimethylammonioethyl methacrylate when A is oxygen,  $\text{R}_1, \text{R}_3$  and  $\text{R}_4$  are methyl,  $\text{R}_2$  is ethylene,  $n_1$  is 2;

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sulfobutyldimethylammonioethyl methacrylate when A is oxygen, R<sub>1</sub>,R<sub>3</sub> and R<sub>4</sub> are methyl, R<sub>2</sub> is ethylene, n<sub>1</sub> is 4; sulfopropyldiethylammonioethyl methacrylate when A is oxygen, R<sub>1</sub> is methyl, R<sub>2</sub> is ethylene, R<sub>3</sub> and R<sub>4</sub> are ethyl, n<sub>1</sub> is 3; sulfopropyldimethylammoniopropyl acrylamide when A is NH, R<sub>1</sub> is hydrogen, R<sub>3</sub> and R<sub>4</sub> are methyl, R<sub>2</sub> is propylene, n<sub>1</sub> is 3; sulfopropyldimethylammoniopropyl methacrylamide when A is NH, R<sub>1</sub>, R<sub>3</sub> and R<sub>4</sub> are methyl, R<sub>2</sub> is propylene, n<sub>1</sub> is 3; SPE after polymerization when A is oxygen, R<sub>1</sub>,R<sub>3</sub> and R<sub>4</sub> are methyl, R<sub>2</sub> is ethylene, n<sub>1</sub> is 3 (also see claim 4, 6 and Example for N-methacryloyloxyethyl-N, N-dimethyl-N,3-propyl-sulfobetaine and 1g of hydroxyethylmetacrylate which is SPE); SPP when A is NH, R<sub>1</sub>, R<sub>3</sub> and R<sub>4</sub> are methyl, R<sub>2</sub> is propylene, n<sub>1</sub> is 3.

Samour further teaches a mixture of the copolymer in water (col.2, line 45-50), which reads on the fluid composition, and it is the examiner's position that such mixture could function as a drilling fluid.

8. **Claims 62-69 and 83** are rejected under 35 U.S.C. 102(b) as being anticipated by US Patent No. 6133391 (Nielson).

Nielson teaches an aqueous composition (col.4, line 45-47) comprises zwitterionic copolymer comprising from 10 to 50 mole% of N-(3-sulphopropyl)-N-methacryloxy-ethyl-N,N-dimethyl ammonium betaine or N-(3-sulphopropyl)-N-acryloxy-ethyl-n,N-dimethylammonium betaine (claim 1 3, 6 and 12), which reads on the betaine unit and the amount; and 2-(2-ethoxy)ethoxy ethyl acrylate, 2-methoxyethyl acrylate or

2-butoxyethyl acrylate (claim 7), which reads on the claimed alkoxylated unit; or 2-hydroxyethyl acrylate (claim 7), which reads on the claimed hydroxylated unit.

Nielson further teaches the betaine monomer includes ammonium phosphate, ammonium sulphonate, N-(3-sulphopropyl)-N-methacryloxy-ethyl-N,N-dimethyl ammonium betaine, N-(3-sulphopropyl)-N-acryloxy-ethyl-n,N-dimethylammonium betaine , N-(3-sulphopropyl)-N-methacrylamido-propyl-N,N-dimethyl ammonium betaine, 1(3-sulfopropyl)-2-vinyl-pyridinium betaine, N-(3-sulphopropyl)-N,N-diallyl-N-methyl ammonium betaine, or N-(3-sulphopropyl)-N-allyl-N,N-dimethyl ammonium betaine (col. 2, line 32-40), which reads on the claimed sulfonate and phosphate anionic group, ammonium and pyridinium cationic group; where N-(3-sulphopropyl)-N-methacryloxy-ethyl-N,N-dimethyl ammonium betaine (col.2, line 32-35) reads on SPE, N-(3-sulphopropyl)-N-methacrylamido-propyl-N,N-dimethyl ammonium betaine (col.2, line 32-35) reads on SPP.

Further, it is the examiner's position that Nielson's aqueous solution of the copolymer reads on the fluid composition and can function as a drilling fluid.

9. **Claims 62-63, 66-74, 79 and 81-83** are rejected under 35 U.S.C. 102(b) as being anticipated by US2002/0065208A1(Aubay ).

Aubay teaches a polymer which has a cationic charges to the anionic charges of 50/50 ([0105]), which reads on the claimed zwitterionic polymer, comprising amphoteric monomer units ([0100]) such as N, N-dimethyl-N-methacryloylethyl-N(3-sulphopropyl)ammonium sulphobetaine (SPE), N, N-dimethyl-N(2-methacrylamidoethyl)-N-(3-

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sulpho-propyl) ammonium betaine (SPP), 1-vinyl-3-(3-sulphopropyl)imidazolidium betaine or 1-(3-sulphopropyl)-2-vinylpyridinium betaine ([0051]), which reads on the claimed units having a betaine group with a cationic group and an anionic group; and comonomer unit ([0101]) such as polyethylene oxide methacrylate(Bisomer S20 W), which has a formula of  $H_2C=C(CH_3)COO(CH_2CH_2O)_xCH_3$  and approximately 45 EO unit ( $x=45$ ) as evidenced by the product data sheet by Cognis; polyoxyethylene-behenylmethacrylate, which has a formula of  $H_2C=C(CH_3)CO_2(CH_2CH_2O)_n(CH_2)_{21}CH_3$  and approximately 25 EO unit ( $n=25$  based on the average molecular weight) as evidenced by the product data sheet by Aldrich; or polyoxyethylene  $\omega$ -tristyrylphenyl methacrylate ([0061]), which reads on the claimed alkoxylated units.

Aubay further teaches the betaine unit can be as much as 20% by weight of the composition ([0100]), the alkoxylated comonomer is therefore 10% at most, which is equivalent to 93 mole% of betaine unit and 17% of alkoxylated comonomer unit based on the molecular weight of SPE (molecular weight 279 g/mole) and polyethylene oxide methacrylate (Bisomer S20 W, molecular weight 2080g/mole), which reads on the claimed amount.

Aubay further teaches an aqueous formulation (claim 6) where the polymer is present in amount ranging from 0.05% to 10% ([0129]), exemplifying as 0.1-3%, 0.1-2%, 0.1-5% etc. ([0130] and claim 6), which reads on the claimed range. Aubay further teaches the aqueous formulation may comprises other surfactants ([0138],[0143] and[0236]), foam suppressants ([0215]), enzyme breakers ([0224],[0225], [0226]) and other solvents in particular alcohols ([0241]), all of which are common additives in a

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wellbore service fluid. Therefore it is the examiner's position that Aubay's aqueous formulation can function as a drilling fluid.

10. **Claim 78** is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Samour.

The teachings of Samour are detailed in the rejection under 35. U.S.C. 102(b) of claims 62-68 and 75-77, 79-80 and 83 above.

Since Samour teaches the same composition as claimed, the molecular weight of the Samour composition would inherently be the same as claimed. If there is any difference between the product of Samour and the product of the instant claims the difference would have been minor and obvious. "Products of identical chemical composition can not have mutually exclusive properties." A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. See MPEP 2112.01(I) , *In re Best*, 562 F2d at 1255, 195 USPQ at 433, *Titanium Metals Corp v Banner*, 778 F2d 775, 227 USPQ 773 (Fed Cir 1985), *In re Ludtke*, 441 F2d 660, 169 USPQ 563 (CCPA 1971) and *Northam Warren Corp v D F Newfield Co*, 7 F Supp 773, 22 USPQ 313 (EDNY 1934).

Where applicant claims a composition in terms of a function, property or characteristic and the composition of the prior art is the same as that of the claim but the function is not explicitly disclosed by the reference, the examiner may make a rejection under both 35 USC 102 and 103. "There is nothing inconsistent in concurrent

rejections for obviousness under 35 USC 103 and for anticipation under 35 USC 102." See MPEP 2112(III) and *In re Best*, 562 F2d at 1255, 195 USPQ at 433.

11. **Claim 78** is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Nielson.

The teachings of Nielson are detailed in the rejection under 35. U.S.C. 102(b) of claims 62-69 and 83 above.

Since Nielson teaches the same composition as claimed, the molecular weight of the Nielson composition would inherently be the same as claimed. If there is any difference between the product of Nielson and the product of the instant claims the difference would have been minor and obvious. "Products of identical chemical composition can not have mutually exclusive properties." A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. See MPEP 2112.01(I) , *In re Best*, 562 F2d at 1255, 195 USPQ at 433, *Titanium Metals Corp v Banner*, 778 F2d 775, 227 USPQ 773 (Fed Cir 1985), *In re Ludtke*, 441 F2d 660, 169 USPQ 563 (CCPA 1971) and *Northam Warren Corp v D F Newfield Co*, 7 F Supp 773, 22 USPQ 313 (EDNY 1934).

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rejection under both 35 USC 102 and 103. "There is nothing inconsistent in concurrent rejections for obviousness under 35 USC 103 and for anticipation under 35 USC 102." See MPEP 2112(III) and *In re Best*, 562 F2d at 1255, 195 USPQ at 433.

12. **Claim 78** is rejected under 35 U.S.C. 102(b) as anticipated by or, in the alternative, under 35 U.S.C. 103(a) as obvious over Aubay.

The teachings of Aubay are detailed in the rejection under 35. U.S.C. 102(b) of claims 62-63, 66-74, 79 and 81-83 above.

Since Aubay teaches the same composition as claimed, the molecular weight of the Aubay composition would inherently be the same as claimed. If there is any difference between the product of Aubay and the product of the instant claims the difference would have been minor and obvious. "Products of identical chemical composition can not have mutually exclusive properties." A chemical composition and its properties are inseparable. Therefore, if the prior art teaches the identical chemical structure, the properties applicant discloses and/or claims are necessarily present. See MPEP 2112.01(I) , *In re Best*, 562 F2d at 1255, 195 USPQ at 433, *Titanium Metals Corp v Banner*, 778 F2d 775, 227 USPQ 773 (Fed Cir 1985), *In re Ludtke*, 441 F2d 660, 169 USPQ 563 (CCPA 1971) and *Northam Warren Corp v D F Newfield Co*, 7 F Supp 773, 22 USPQ 313 (EDNY 1934).

Where applicant claims a composition in terms of a function, property or characteristic and the composition of the prior art is the same as that of the claim but

the function is not explicitly disclosed by the reference, the examiner may make a rejection under both 35 USC 102 and 103. "There is nothing inconsistent in concurrent rejections for obviousness under 35 USC 103 and for anticipation under 35 USC 102." See MPEP 2112(III) and *In re Best*, 562 F2d at 1255, 195 USPQ at 433.

### ***Conclusion***

12. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AIQUN LI whose telephone number is (571)270-7736. The examiner can normally be reached on Monday -Thursday, 9:30 am - 6:00 pm EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Milton Cano can be reached on (571)2721398. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/AL/

/Timothy J. Kugel/  
Primary Examiner, Art Unit 1796